TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE WYOMING SOIL CONSERVATION SERVICE

Biology No. 402 January 1986

Subject: TIGER SALAMANDER*

General

The tiger salamander (Ambystoma tigrinum) is the most widespread salamander in North America and occupies moist environments that occur in sagebrush deserts, grasslands, mountain meadows, and spruce-fir forests within this region. The adult tiger salamander is essentially fossorial.

Food Requirements

Larval tiger salamanders in New Mexico ate the eggs of canyon tree frogs (Hyla arenicolor), mosquito larvae, snails and slugs, and adult and larval insects. In western Colorado, salamander larvae ate insects and mollucks. Captive tiger salamanders ate earthworms and other invertebrates.

Water Requirements

No drinking water requirements were found in the literature. Water needs during breeding are described under Reproductive Requirements.

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*Information taken from Ecoregion M3113 Handbook and Habitat Suitability Index Models, Wildlife Species Narratives (literature searches), U.S. Fish and Wildlife Service, various dates between 1978-1985.

Cover Requirements

Adult salamanders seek cover in crevices, decayed logs, and in rodent burrows. The use of underground retreats is especially important in semiarid habitats.

Adult tiger salamanders emerge from their burrows only to breed. Above approximately 9,500 ft (2,900 m) in Colorado, adult salamanders emerge from overwintering in rodent burrows immediately after snowmelt and migrate to ponds where they remain all summer. Salamander larvae remain in the ponds throughout the year at high elevations. Final metamorphosis may not occur for 2 to 3 years or may never take place in cold high altitude ponds and lakes.

Reproductive Requirements

The timing and length of breeding periods of the tiger salamander are dependent upon the interaction of temperature and rainfall. Breeding takes place in freshwater ponds, lakes, and slowly flowing streams. Tiger salamanders in Utah usually bred at least once each year. Egg deposition normally occurred from late May to late June. Summer rains triggered late spring or summer breeding, which provided larvae of two or more age classes in the same pond. Most larvae completed metamorphosis within 90 days and overwintered as adults.

Breeding ponds in Colorado were generally less than 3.7 acres (1.5 ha) in size with maximum depths ranging from 3.3 ft (1 m) to 19.7 ft (6 m). They were typically surrounded by sedges and grasses, which sometimes extended into the water. The bottoms sloped upward gradually to the edge, providing a temperature gradient between shallow and deep water. The larvae were more particular about water temperature than adults. Salamanders generally stayed in waters with a temperature range of 55.4° to 77°F (13° to 25°C). Experiments have shown that water temperatures above 97.5°F (36.4°C) are lethal to tiger salamanders. High altitude ponds that seldom attain temperatures higher than 10°C (50°F) restrict the growth and development of salamander larvae. Eggs are laid on submerged twigs, rocks, or on the stems of growing vegetation. Egg masses in New Jersey were deposited on or within 15 cm (5.9 in) of the bottom in 30 to 45 cm (11.8 to 17.7 in) of water. Eggs were not found near the edges of ponds nor in water less than 20 cm (7.8 in) in depth.

Special Habitat Requirements

No special habitat requirements were found in the literature.

Interspersion Requirements

One study stated that tiger salamanders are found near water. In New Mexico, one researcher found several individuals in a rodent burrow located miles away from a stream. Several instances of mass migrations by salamanders to breeding areas have been described.

Special Considerations

Ideal breeding ponds for the tiger salamander contain few if any fish. The introduction of fish populations is known to eliminate breeding populations of salamanders.